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CULTIVATION OF MEDICINAL PLANTS IN THE UNITED STATES

To Meet the Emergency Caused by the European Conflict.

By L. E. SAYRE.

THE present European conditions have emphasized the necessity of the cultivation of medicinal plants in the United States. Hitherto we have been almost wholly dependent upon European countries for most of the medicinal plants, valuable preparations of which are manufactured here. The attention of the American people has frequently been called to the need of the development of the cultivation of crude drugs on American soil, but thus far very few have heeded the advice of pharmacists in this direction. Some years ago, in California, several comparatively large sections of land were set aside for the growing of the more important narcotic solanaceous leaves, such as belladonna, hyoscyamus and stramonium. This enterprise was started by a large manufacturing firm of New York City. Since that time the work has been carried on by Prof. Albert Schneider, of San Francisco. Some of the products of this farm have been sent to the pharmaceutical laboratory of the University of Kansas for analysis. The results of these analyses have shown that the plants raised on the Pacific coast are equal, if not superior, in alkaloidal constituent to those of the European cultivation.

When we consider the many tons of these plants consumed in the United States in making preparations such as tinctures, fluid extracts and medicated plasters, it becomes evident that the supply, if furnished by our own country, would not only be a profitable undertaking, but would put us in an independent position. The dependence upon Europe is brought forcibly to our attention by the statement that the supply of many of these drugs will soon be exhausted. Unless some change occurs in European affairs, the United States will be forced to provide substitutes for these well-known and tried agents.

It would seem that most any rich soil would yield abundance of our common stramonium, or jimson weed. On account of its commonness, it is called the barnyard weed. Every one who knows anything about medicinal plants knows that this

plant grows luxuriantly in Kansas, as it is recognized on most of our common roadsides. Since stramonium furnishes the narcotic alkaloids closely allied to hyoscyne and atropine, there is no reason why this plant should not be utilized to a greater extent than it is, and some enterprising firm should bring about its commercialism and utilization as alkaloidal products. Now is the psychological moment, so to speak, to bring about this desired end—to show that the United States is a place and has a soil suitable for the raising of some of our vegetable medicinal substances.

We may cite some interesting cases of profitable medicinal plant culture. In certain sections of the country near Lebanon, Pa., among the people who are known as the Shakers, there has been for years the cultivation of such plants as conium, lobelia, and many of the drugs used in the eclectic practice. In Michigan, in the low, marshy and boggy part of the country, hundreds of acres are under cultivation in raising the plants of the natural order of Labiatae. The writer visited one of these farms last summer; in fact, has visited the same one for a number of summers. It contains 1400 acres of land entirely devoted to the cultivation of peppermint and spearmint. This farm is located near Fenville, Mich., and another one, of 2100 acres, is located near Kalamazoo, Mich. These two farms produce thousands of pounds of peppermint and have grown into a stupendous industry, employing hundreds of men during the summer and a very large number during the winter months, when the farm has to be taken care of and repairs made to the machinery used for the distillation of the plant in order to obtain the volatile oil.

One of the most expensive, and possibly one of the most profitable, plant industries that could be promoted in the United States is the cultivation of goldenseal (*Hydrastic canadensis*). This drug brings on the market \$4.75 per pound; pressed leaves, \$7.35 per pound. The cultivation of the plant at the present time has not gone far beyond the experimental stage. Fifteen or twenty years ago the supply of the wild plants was sufficient to maintain the consumption, but during the last ten years the demand has been so great as to almost exhaust our fields and forests where the plant finds a natural habitat. It is interesting to know that some have cultivated the *Hydrastis* successfully. John O. Baldwin contributes an

article in the *American Journal of Pharmacy* for April, 1913, and we take the liberty of extracting from his article such portions as will be of interest and applicable in this paper. He says:

"The natural home of the goldenseal is in the deep shady nooks of our American forests, where the soil is rich and soft and deep, and the moisture and the drainage are in its favor. Where once it grew in profusion, it is found only in patches now, and these small areas are constantly giving away to only here and there a single plant, and these lingering halos of the past wild woodland glory are year by year teaching their lesson of conservation to the student and grower.

"To be successful in the growing of this plant, the natural conditions must be carefully and strictly observed, artificial means being employed only where they improve upon the natural, where the plants originally grew, and then the natural conditions should not be eliminated or overlooked."

Echinacea angustifolia is a plant natural to the soil of Kansas. It is well known that this plant has acquired a great reputation in certain forms of disease, and as an antiseptic local application and as an internal remedial agent it is growing in popularity, so that thousands of pounds of the root have been shipped out of the state, consumed in medicinal preparations which find ready demand by the medical profession.

Ginseng is a plant which has received some attention. In some parts of Ohio the plant has been cultivated successfully. The writer visited some patches of ground where this plant was cultivated near Toledo, Ohio. Here and there over the country are persons who are experimenting upon its cultivation. The soil and condition of its cultivation are very similar to that of *Hydrastis*, above referred to.

Many other plants might be named in this connection, but it would prolong this article unduly, as this is written simply to call attention to the subject and to excite interest of the agriculturist and gardener. Those who are interested, or will become interested in this plant cultivation, as above suggested, would do well to correspond with the Bureau of Plant Industry of Washington, D. C., where they can get in communication with the department which has had this matter under careful scientific study for a number of years.

The sudden cessation of foreign chemical manufacture and importation from European countries, notably Germany, has caused considerable discomfiture in the American chemical and pharmaceutical circles and has induced the authorities of

the University of Kansas to make a strong plea to the legislature for the establishment of a greenhouse suitable for the raising of medicinal plants, and it is hoped that through the Pharmacy Department this cultivation and experimentation will eventually aid in the production of these, and at the same time enhance the value of the farms and garden spots of Kansas.